

CLAIMS

WHAT IS CLAIMED IS:

- 5 1. A heat exchanger comprising:
 a first end tank;
 a second end tank opposite the first end tank;
 a plurality of first tubes in fluid communication with the first and second
 end tanks, the plurality of first tubes adapted to have a first fluid flow
10 therethrough;
 a plurality of second tubes in fluid communication with the first and
 second end tanks, the plurality of second tubes adapted to have a second
 fluid, different from the first fluid, flow therethrough;
 a plurality of fins disposed between the first and second tubes, with the
15 first and second tubes and the fins being generally co-planar relative to each
 other;
 wherein at least one of the first fluid or second fluid is a radiator fluid.
- 20 2. A heat exchanger as in claim 1 wherein the first end tank and
 the second end tank each include at least one baffle.
3. A heat exchanger as in claim 1 wherein each of the plurality of
 first tubes includes a passageway and the passageway includes partitions,
 which divide the passageway such that the tube will perform a passive bypass
25 function.
4. A heat exchanger as in claim 3 wherein the partitions include
 fins.
- 30 5. A heat exchanger as in claim 1 wherein at least one of the first
 tubes, second tubes or third tubes is of another size than one of the other
 tubes.

6. A heat exchanger as in claim 1 wherein the first fluid is an oil.

7. A heat exchanger comprising:

a first end tank;

5 a second end tank opposite the first end tank;

a plurality of first tubes in fluid communication with the first and second end tanks, the plurality of first tubes adapted to have a first fluid flow therethrough;

a plurality of second tubes in fluid communication with the first and second end tanks, the plurality of second tubes adapted to have a second fluid, different from the first fluid, flow therethrough;

a plurality of third tubes in fluid communication with the first and second end tanks, the plurality of third tubes adapted to have a third fluid, different from the first or second fluid, flow therethrough;

15 a plurality of fins disposed between the first, second and third tubes, with the majority of fins being generally co-planar relative to each other;

wherein at least one of the first fluid, second fluid or third fluid is a radiator fluid.

8. A heat exchanger as in claim 7 wherein the first end tank and the second end tank each include at least one baffle.

9. A heat exchanger as in claim 7 wherein each of the plurality of first tubes, second tubes or third tubes includes a passageway and the passageway includes partitions, which divide the passageway such that the tube will perform a passive bypass function.

10. A heat exchanger as in claim 9 wherein the partitions include fins.

30 11. A heat exchanger as in claim 7 wherein at least one of the first tubes, second tubes or third tubes is of another size than one of the other tubes.

12. A heat exchanger as in claim 7 wherein the first fluid is an oil.

13. A heat exchanger as in claim 7, wherein the first or second fluid is an oil.

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14. A heat exchanger comprising:

a first end tank;

a second end tank opposite the first end tank;

a plurality of first metal tubes in fluid communication with the first and
10 second end tanks, and being adapted to have a first fluid flow there-through;

a plurality of second metal tubes in fluid communication with the first
and second end tanks, and being adapted to have a second fluid, different
from the first fluid, flow there-through;

a plurality of third metal tubes in fluid communication with the first and
15 second end tanks, and being adapted to have a third fluid, different from the
first fluid or second fluid, flow there-through and

a plurality of fins disposed between any of the first, second or third
tubes, with at least two of the first, second or third tubes and the fins being
generally co-planar relative to each other;

20 wherein at least one of the first, second or third metal tubes includes
an interior wall structure including a partition adapted for subdividing the tube
into a plurality of passageways within the tube.

15. A heat exchanger as in claim 14 wherein the first end tank and
25 the second end tank each include at least one baffle.

16. A heat exchanger as in claim 14 wherein at least one of the first
tubes, second tubes or third tubes is of another size than one of the other
tubes.

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17. A heat exchanger as in claim 14 wherein one or more of the
passageways includes partitions, which divide the passageway such that the
tube will perform a passive bypass function.

18. A heat exchanger as in claim 14 wherein the partition includes at least one fin.

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19. A heat exchanger for an automotive vehicle, comprising:
at least one end tank;

at least two heat exchangers including a plurality of spaced apart metal tubes with fins between the spaced tubes;

10 the heat exchangers being disposed so that their respective tubes and fins are generally co-planar with each other and are connected to the end tank;

the heat exchangers being selected from the group consisting of an oil heat exchanger, a condenser, a radiator or combinations thereof.

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20. A heat exchanger as in claim 19 wherein the at least one of said heat exchangers is a radiator.

21. A heat exchanger system comprising a heat exchanger as in claim
20 1 and at least one other heat exchanger.

22. A heat exchanger system comprising a heat exchanger as in claim 7 and at least one other heat exchanger.

25 23. A heat exchanger system as in claim 21, wherein one heat exchanger is adapted to have a fluid selected from the group of radiator coolant and an automotive fluid and the other heat exchanger is adapted to have a fluid selected from the group of automotive fluids.

30 24. A heat exchanger system as in claim 22, wherein one heat exchanger is adapted to have a fluid selected from the group of radiator coolant and an automotive fluid and the other heat exchanger is adapted to have a fluid selected from the group of automotive fluids.

25. A heat exchanger system as in claim 21, wherein the heat exchangers are arranged in parallel.

5 26. A heat exchanger system as in claim 22, wherein the heat exchangers are arranged in parallel.

27. A heat exchanger system as in claim 21, wherein the heat exchangers are arranged side by side.

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28. A heat exchanger system as in claim 22, wherein the heat exchangers are arranged side by side.

29. A heat exchanger as in claim 1, wherein the fluid flow direction is
15 vertical or down flow from top to bottom or bottom to top.

30. A heat exchanger as in claim 7, wherein the fluid flow direction is vertical or down flow from top to bottom or bottom to top.

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